

THE AMERICAN JOURNAL OF
OPHTHALMOLOGY.

VOL. VIII.

FEBRUARY, 1891.

No. 2.

ORIGINAL ARTICLES.

TRAUMATIC HÆMORRHAGES IN THE REGION
OF THE MACULA LUTEA.

BY S. C. AYRES, M.D., OF CINCINNATI, OHIO.

The importance of preserving central vision makes all injuries involving the macula region assume a serious aspect until the blood has cleared up sufficiently to allow an inspection by the ophthalmoscope. The following cases are reported to "show how rapidly and completely eyes, otherwise healthy, recover from apparently severe injuries involving the yellow spot and its immediate vicinity.

The anatomical construction of the macula lutea is such, that we might reasonably expect it to suffer from contusions and injuries of the eye-ball more than other portions of the retina. Stricker says "the fragile and transitory nature of the substance of the yellow spot is explained by the circumstance that the more delicate nervous elements here greatly outnumber the elements of the connective substance, which in other portions of the retina occupy a much more considerable space." The macula being surrounded by delicate capillary

loops, seems to offer a point of less resistance than other portions of the retina.

Intra-ocular hæmorrhages occur quite frequently from injuries and contusions of the eye-ball. After the vitreous has cleared up, it is not always possible to tell the point at which the hæmorrhage occurred. It might have been from the anterior portion of the eye-ball; from the ciliary region; in which case it would be impossible to locate the lesion. If from the posterior portion of the globe, the point of hæmorrhage can frequently be located if the eye is examined before the blood is entirely absorbed. In an otherwise healthy eye, traumatic intra-ocular hæmorrhages are absorbed very rapidly. Hæmorrhages in the vicinity of the macula lutea are very liable to be followed by impairment of vision. Central vision may be entirely destroyed, or a condition of permanent metamorphopsia may remain.

CASE I.—INJURY OF THE EYE BY A BALL.

Intra-Ocular Hæmorrhage and Hæmorrhage in Macula Lutea; Metamorphopsia; Changes in Refraction of the Eye; Recovery.

C., gave the following history of an accident which he received five days ago:

He was playing base ball and was struck by the ball in the left eye. There was immediate loss of vision, and the eye was considerably painful for the rest of the day. Cold applications were applied, and two days later, he began to see light. The following day he could dimly see large objects in the room.

I saw him on the fifth day after the injury, on May 24, 1888, and by that time he was able to count fingers at 4 feet. The pupil was dilated almost ad maximum and fixed, and presented an elongated appearance. He was required to keep quietly at home in a darkened room, and a weak solution of eserine was used twice a day. There was a hæmorrhage in the region of the macula lutea, somewhat irregular in shape, but distinctly involving that region. May 20, $V=0.3$.

Blood absorbing; he has now metamorphopsia in the horizontal meridian. Horizontal lines appear broken and irregular in the center. The case progressed very favorably, and by June 4, vision had increased to 0.7. He now appeared slightly myopic, and with -0.75 , his vision was 0.9. The pupil still remains dilated but not so much as at first.

June 19, $V=0.9$. Sees better with -0.75 D. cyl. ax., 0° .

July 6, $V=0.9$, with $+0.25$ D. cyl. ax., 90° , $V=1$. Vertical lines wavy; horizontal correct.

July 23, $V=1$.

September 7, his refraction was tested under homatropine with the result of discovering that he had hyperopic astigmatism in a moderate degree in both eyes.

CASE II.—INJURY OF THE EYE BY A RUBBER SLING SHOT.

Extensive Intra-Ocular Hæmorrhage and Hæmorrhage in Region of Macula Lutea With Œdema of Retina; Recovery.

G. B., æt. 15. On March 6, 1889, he was hit in the eye with a shot thrown from a rubber sling, which struck the eye-ball just below the cornea. The blow was followed by almost instant loss of sight; this continued for two days, when it began to clear up. The vision slightly improved, so that in the course of three or four days he could see objects around the room.

I saw him first, ten days after the injury; at that time vision was 0.4. There was no external evidence of an injury; the central portion of the retina around the macula presented a stippled appearance, as if there were minute hæmorrhages collected together; in the macula region there was a little grayish spot which seemed to be slightly prominent; the retina for some distance around the macula was œdematous. Four days later vision was increased to 0.8, and on March 21, vision was 0.9. The stippled appearance around the macula gradually subsided. Later I saw him again and vision was perfectly restored and no trace of the injury could be seen.

CASE III.—HÆMORRHAGE IN THE REGION OF THE MACULA
WHILE STOOPING DOWN TO DRINK OUT OF A STREAM.

Œdema of the Retina; Central Scotoma; Recovery.

October 25, 1888. E. H. N., æt. 24, gave the following history of the amblyopia of his right eye:

He says that two weeks ago, while hunting, he stooped down to drink out of a stream, and when he arose he noticed some dark clouds before that eye and dimness of vision. This increased during the day, and by evening his sight was so imperfect that he could not count fingers, and could only see motions of the hand far downward. There was no pain and no inconvenience except from loss of vision. This remained nearly the same until the present time. The ophthalmoscope shows marked alterations in the region of the macula. There is a hæmorrhage irregular in shape and a grayish cloud which partly covers it, probably due to œdema of the retina.

He remained under treatment for a short time, and when he left his vision had increased to 0.1, but the scotoma still involved the inner and central portion of his field of vision. He went home under strict instructions and returned in a month, and vision had improved to 0.6. He was seen February 7, 1889, about four months after the injury, and vision in this eye was perfect.

The field of vision was complete, but he says there is the thinnest possible scotoma which can still be detected in the central portion of the field; it does not, however, interfere with his acuity of vision.

In the first case there was a well-marked mydriasis with a fixed condition of the pupil, and later on some interesting changes in the refraction. First he saw better with a concave lens, then with a concave cylinder, later with a convex cylinder, and when his refraction was tested he was found to have hyperopic astigmatism.

Berlin in speaking of the eye says "that it is very probable that hæmorrhages in the immediate vicinity of the lens can in-

fluence the shape, and even, under certain circumstances, the position of the latter, and thus cause a disturbance of vision in conjunction with the spastic contraction of the sphincter iridis through irregular astigmatism. In this case the concussion of the heavy ball coming with considerable velocity would very probably cause hæmorrhages in the anterior portion of the eye. It was probably in the ciliary region and in sufficient quantity to influence the action of the ciliary muscle on the lens and especially when associated with mydriasis."

In the proceedings of the Ophthalmological Society of the United Kingdom, March, 1888, Mr. Lang reported a case of Retinal Hæmorrhage in the region of the yellow spot. It recovered with perfect vision and in his judgment the hæmorrhage occurred between the hyaloid membrane of the vitreous and the retina, and not between the layers of the retina or in the choroid.

At the same meeting "Mr. Nettleship showed diagrams of two cases of large semi circular hæmorrhages at the yellow spot; the inferior macular artery which traversed the blood patch was found to be obliterated in one case, and greatly altered in the other." This condition offered very plausible explanation of the hæmorrhage and showed that it was from a retinal vessel. It seemed also more probable that complete recovery might take place when the hæmorrhage was from the retina and immediately underneath the hyaloid, than where it was from the choroid. If from the latter it would probably cause such an amount of cicatrization in the chorio-capillaris as to influence the rods and cones, and result in a limited scotoma or in permanent metamorphopsia.

In the second case there was an œdematous condition of the retina which extended for some distance around the macula, but it all disappeared, and there was no visible trace of the injury left.

Berlin says he has observed the retina to assume a gray cloudy opacity in a defined area after injuries of the eye with a blunt body.

Arlt, in his work on injuries of the eye, says that experiments

on rabbits proved that blows on the sclerotic caused an opacity in the immediate vicinity of the injuries and also at a point nearly corresponding on the opposite side of the eye. He says that this œdema of the retina is due to hæmorrhages between the choroid and the sclerotic.

In the third case the hæmorrhage was not strictly traumatic. He had become heated while walking, and stooped down to drink. It was not apoplectic in the general acceptation of the term, as it was not due to a disease of the coats of the blood vessels. It was traumatic in the sense that the retinal vessels were engorged and the return of their blood to the heart impeded by his constrained and unnatural position.

Here also there was œdema of the retina as in the previous case. There was a central scotoma, and vision was long returning. It is probable that there was a hæmorrhage not only between the retina and the hyaloid membrane of the vitreous, but into the substance of the retina itself.

TWO CASES OF PERFORATING INJURY TO THE SCLEROTIC, CHOROID AND RETINA, ALMOST IDENTICAL.

BY ADOLF ALT, M.D., ST. LOUIS.

On September 29, 1890, I was consulted by J. M., æt. 30, a railroad laborer, on account of an injury to the right eye.

He stated, that the previous afternoon, while "chipping," he was struck by a piece of steel about "one-half of an inch long." He felt a severe pain and had to give up working on account of loss of sight. When I saw him there was some episcleral injection, the pupil was somewhat contracted, and there was slight photophobia. Outward and downward, just behind the ciliary region, there was a clear cut in the sclerotic which was about one-quarter of an inch long. On slight pressure it gaped, and a small amount of clear vitreous body became visible. This of course established the fact, that the injuring steel had cut through sclerotic, choroid and retina. The pupil dilated readily on the instillation of atropine. He counted fingers at 9 feet.

With the ophthalmoscope hyperæmia of the papilla and retina (veins tortuous) was plainly visible. Corresponding to the external wound a small opening in the retina was found, with a number of very small hæmorrhages surrounding it. The vitreous body was clear. No foreign body could be detected, in spite of a prolonged and exhaustive search.

The eye was thoroughly stained with pyoktanine (1:1500) and hermetically sealed. A guarded prognosis was given.

The next day no further inflammatory reaction could be

found, and the wound-lips did not gape as much. This I took as a good omen; but the next day signs of iritis showed themselves, and a few days after there was also hypopyon. These symptoms developed in spite of antiseptic treatment and dilatation of the pupil. The patient now suffered from severe pain, headache, giddiness, and $V=1/\infty$.

At the height of the inflammation the patient disappeared.

On January 3, 1891, he returned, telling a story of severe illness with brain-symptoms, from which he was just recovering. His eye was now free from irritation. The wound was well healed. The iris was nowhere adherent to the lens, and the pupil was active. $V=1/\infty$ excentrically. Almost total detachment of the retina.

On October 15, 1890, while J. M. was yet under observation, E. M. consulted me. He was also a railroad laborer, 20 years old, and had also been struck by a piece of steel, while chipping, the day before. In his case it was the left eye that was injured. Vision was reduced to $12/cc$. On examination, I found the identical injury of the previous case, reproduced here, only in the other eye, *vis.*, a clean cut, about a quarter of an inch long, just behind the ciliary region, outward and downward in its direction. It gaped easily on pressure, and a clear bead of vitreous showed itself. The only difference this case presented was, that the inner wound more nearly equalled the outer one in size, than in the former case.

There was also hyperæmia of disc and retina, and a gaping opening in the retina and choroid, which had both retracted and left a black centre (vitreous) with a whitish yellow border (sclerotic) easily seen with the ophthalmoscope. The retina surrounding the opening was infiltrated with blood for some distance.

The treatment consisted of pyoktanine-staining, dilatation of the pupil and closure of the lids.

The healing was uninterrupted by any inflammatory sign, and allowed of a daily ophthalmoscopic study of the healing process. The latter was ended 17 days after the injury had

been received. The scar was then firm, $V=^{30}/_{xx}$, and the patient was discharged.

It was certainly interesting to see two cases of a comparatively rare nature come so closely together, and, being so nearly alike, yet end so differently. Of course, in the one case infection of the deeper parts had taken place, while in the second one such an accident had luckily not occurred.

SELECTIONS FROM AMERICAN MEDICAL JOURNALS.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM.¹

BY ROBERT TILLEY, M.D., CHICAGO.

In 1876 a German congress of the teachers of the blind, assembled in Dresden, devoted its attention to the subject of ophthalmia neonatorum, and realized how important a factor it was in the cause of blindness. The result of this convention was that the study of this question was recommended to the special attention of all persons who could contribute to its correction. From this time the study of the best means of prophylaxis of ophthalmia of the new-born occupied the attention of industrious, capable and philanthropic men. When we reflect that this disease contributed as many as forty per cent of the inmates of some of the institutions for the blind we only wonder that the subject had not previously called forth the spirit of practical investigation. It would be the most flagrant waste of time were I to stop to talk to members of this society of the privation and distress associated with a life-long blindness, or of the necessity of watching any possible source of contribution to such an affliction. No arguments on this subject can possibly be necessary. To a certain extent our honor as medical men is associated with the question of the relative number of blind in the community, and I believe that in proportion as we duly understand and appreciate the importance of this subject in its various relations, the propor-

¹Read before the Chicago Medical Society.

tion of blind from this source will diminish until blindness from this source will be practically unknown.

I said that 40% of some of the inmates of certain blind institutions were the victims of uncured ophthalmia neonatorum, but it must not be inferred that 40% of all the blind are blind from this cause. It is of course almost impossible to obtain exact figures on this question; but from a very careful computation made by very competent men on 2528 blind individuals, it appears that about 10% of all the blind are blind from this cause. These statistics were obtained from the observations of men of unquestionable ability and honesty, and whilst different countries must necessarily suffer in different degrees from an affection of such a kind, we may without exaggeration accept 10% of all blind persons up to the year 1870 as being blind from ophthalmia neonatorum.

When this subject was brought prominently before the profession, many men, whose names it is not necessary to mention, devoted their attention to the development of the necessary measures to remedy the evil. By some the chief care and attention was directed to the irrigation and disinfection of the vaginal canal immediately preceding the act of birth, and by these means the former percentage of babies afflicted with the disease was by different individuals variously diminished; but even with the best of care there remained in the institutions where the observations were made 2.5 or 2% afflicted with ophthalmia neonatorum, when the efforts of the observers were confined to antiseptic washings of the vaginal canal and the ordinary care in cleansing of the babe's eyes. Credé, of Leipsic, however, directed his attention not to the vaginal canal, but to the eyes of the infants, and by his attention the affection is said to have practically disappeared from the institution. According to statistics of the Leipsic Lying-in Institute in the year 1874, the percentage of infants which suffered from ophthalmia neonatorum was 13.6%; in the first half of 1880 the number was by greater attention to cleanliness reduced to 7.6%, and from that period the disease practically

disappeared by the adoption of Credé's method of prophylaxis.

Credé's method is as follows: As soon as the cord is tied, the child washed and the eyes cleansed with clean cloths and plain water, each eye is slightly opened and, by means of a glass rod, a single drop of a 2% solution of nitrate of silver is dropped into it. No further care is necessary. Credé assures us that no child so treated showed any signs of ophthalmia neonatorum within seven days after birth, not even in the slightest degree. No disadvantage followed its use; only in a premature babe was there some serous swelling, with some secretion, but which disappeared completely in 48 hours. The lying-in institution in Leipsic affords sufficient cases for generalization—averaging in round numbers about one birth a day.

These are brilliant results, and, according to journal reports, the claims have been sustained by other observers in different countries with practically corresponding results. When on my way to the Berlin congress I determined to try and ascertain in a very general way to what extent the practice was adopted in some of the lying-in institutions: In New York, to the Maternity Hospital I failed to gain admission. I was permitted to see the penitentiary and the general hospital on Blackwell's Island, but I was not admitted to the maternity department. In the Rotunda Hospital in Dublin I was received with the greatest courtesy. I learned that when the publication of Credé was first made the method was there adopted, but on account of a certain amount of irritation and from the fact that the history of the hospital showed a relatively small amount of ophthalmia neonatorum, the process was abandoned. In Paris I visited the Clinique des Accouchements for the same purpose, and there, also, I was received with all the courtesy that any one could wish. There the method of Credé had been adopted, but, after a trial, the solution was reduced to 1%. It was found that irritation occurred in too many cases. At that time a 1% solution was used, but that ophthalmia neonatorum had not disappeared was clear, because I was shown four cases then present, all of

which were well cared for and clearly on the way to complete recovery. In Germany, strange to say, the subject escaped my memory. In an organization in Liverpool which sends out qualified midwives to attend the poor, the plan had never been adopted. I know nothing of the practice in Chicago beyond the limits of St. Luke's Hospital. Credé's method has never been adopted there. The custom with the nurses is immediately after the cord is tied to cleanse the babe's eyes and the contagious parts with clean cloths and water as the first part of the general bath, and in no case to neglect the eyes in case the general bath should for any reason be dispensed with for a time. They are requested never to use on the eyes the cloths which have been used on the body in general. They are also instructed to report promptly any undue photophobia and any redness or swelling. No remedial measures are adopted unless positive indications of disease are manifest.

I have been told that some teachers in Chicago advocate the universal use of the nitrate of silver solution as adopted by Credé in the hospital. This, however, I know only from reports. I shall be glad to hear from others what the practice is.

But whatever the practice of others may be, whether at home or abroad, the only way to practice medicine efficiently is by the vigorous application of reason to our own existing surroundings. The facts which present themselves for our consideration in this study are as follows: In hospital practice it appears that from 5 to 10% of infants are afflicted with ophthalmia neonatorum; that, as a result of this, one in about 11,000 becomes blind; that a certain number, impossible to estimate, are blind in one eye, and others disfigured with a leucomatous condition of the cornea and corresponding defects of sight.

Again, we have this fact to consider—that ophthalmia neonatorum when properly and early taken in hand is very manageable, and rarely results in either loss of vision or deformity. Of course if the cornea is sloughing before it is taken seriously in hand, deformity and defective vision are sure to

follow, but the cornea does not slough until the affection has existed for some time and been neglected.

It is stated that one drop of a 2% solution of nitrate of silver is no disadvantage to those who are not afflicted. This point, however, is not by any means universally conceded and certainly any one who tries it will not ask for its reapplication as a source of pleasure.

Are we then justified in applying promiscuously the nitrate of silver solution to every babe's eyes in order to prevent a possible difficulty from occurring in 5 or 10% of them. In other words, are we to inflict a punishment, however slight, on the infants of 90 or 95% of women who are not afflicted with gonorrhœa in order to save the remaining 10 or 5% from a disease, which, when promptly taken in hand, is very manageable. To this question I should emphatically answer, no, we are not just in adopting such measures. And I do not think it desirable.

The more conservative plan would be to ascertain previous to or at the time of labor if there has been a history of leucorrhœa, and if there has, it would then be desirable to adopt the plan which has proved so eminently successful in Credé's hands. I should consider that in country practice this would be almost the only means which would satisfactorily meet the difficulty. It may be that in this way a few may be subject to the nitrate of silver application, which would have escaped ophthalmia neonatorum, but the probable advantage would more than compensate for the discomforts.

DR. JONAS NEWBERG.—Mr. President. As Dr. Tilley was prevented from investigating the methods of procedure as employed in the Maternity Hospital, and as I was an interne in the Charity Hospital, perhaps I can give some information on this subject. There they used a modified Credé's method, that is, they first washed out the eyes with a 4% solution of boric acid, and then dropped in a few drops of a 2% solution of nitrate of silver. While I was an interne we had only four or five cases of ophthalmia neonatorum.

We ought to make a sharp dividing line between a gonorrhœal

and non-gonorrhæal affection; and I think in these cases the only way you can do it is by means of a microscope. In those cases where it is gonorrhæal it is a rather severe affection to treat, unless you meet it immediately, and therefore it is decidedly necessary to make a prompt diagnosis. As regards the preventive measures; gonorrhœa in the female attacks principally the cervical mucous membrane and the urethra and the glands of Bartholin and neighboring glands in the vulva; the preventive measures would be to douche with bichloride, or any preferable antiseptic, but this would not reach the cervix and it certainly would not wash out the glands of Bartholin or the urethra. The greatest danger in cases where these parts are affected is, that the secretions are squeezed out when the child's head is on the perineum, therefore the practice in these cases is simply to irrigate this portion. If the cervix is involved I do not think you could by any preventive measure prevent the child getting this affection, because it is almost impossible to cure, or render the gonorrhœa affecting the cervical portion of the uterus non-contagious.

DR. HENRY GRADLE.—Mr. President. I may be able to supplement some of the statements of Dr. Tilley as to German Hospitals. As far as I have been able to follow the matter from reports, none of the German Maternity Hospitals ignore the subject, and the great majority of them follow Credé's method. Some of them have used a corrosive sublimate solution 1-1000, instead of nitrate of silver, and it is generally conceded that this is not a satisfactory substitute, but it is far better to use corrosive sublimate than not to use anything. Dr. Tilley stated that nitrate of silver caused some irritation, which is so, but the irritation seems to be so trivial that it ought not to deter us from using the solution when there is any good reason for applying it. No case has yet been published from any of the hospitals where nitrate of silver did any permanent harm. It is only a matter of a few hours, or at most a few days' swelling of the lids, with scarcely any suffering to the child. Dr. Tilley's suggestions to use it only where there is a clear history of leucorrhœa, might suffer from this disad-

vantage, that gonorrhœal affection in the female does not necessarily lead to a leucorrhœal discharge, while a leucorrhœa is very frequently non-specific. And as we can never be certain whether in a given case there is a remote history of gonorrhœa in either of the parents, it would be perhaps the wiser plan to follow out this method in general practice among the poorer classes, where the disease is much more common, or at least much less treated, and, therefore, more apt to be chronic than in the class of patients who are in a position to take better care of themselves.

DR. BOERNE BETTMAN.—Mr. President. While assistant in Heidelberg, I had an opportunity to treat a great number of these cases, which were sent to our clinic from the Maternity Department. We had also a number of cases of gonorrhœal ophthalmia. The method employed in the hospital was not exactly Credé's method. We simply used a 4% solution of boracic acid, cleansing the eyes with it immediately after birth. I do not think at that time Credé's method was universally adopted in Germany. In the Cook County Hospital I have very few of these cases to treat, and I, the other day, inquired of one of the internes whether they used a preventive method similar to Credé's, and he replied that they did not, but depended entirely upon antiseptic vaginal injections used several hours before the birth of the child. During my service of one year there, I had had only two cases of blenorhœa neonati to treat. I do not know the exact number of births in the hospital, but I should think it was seventy-five or one hundred a year. It is claimed by a number of observers that the gonococcus is found in the majority of eyes affected with this complaint. Oppenheimer, of Heidelberg, made some observations a few years ago, and found the germ in, I think, fully 33%. His observations were made in the hospitals of Germany, and possibly were only among the poorer classes, who come there at the time of labor. I believe the method is a good one, and think it would be well if it were universally employed, because I fully agree with Dr. Gradle that a 2% solution of nitrate of silver in the quantity of a drop is entirely harmless.

DR. C. D. WESCOTT.—Mr. President. I am still in general practice, although I do a little eye work. It has been my custom in obstetric practice among the poorer classes to use the nitrate of silver in the eyes of the new-born babe. I do not do it in all cases, but whenever there is a history of *any* vaginal discharge I personally wash the lids with a little clean water, and then drop in a drop or two of the solution of nitrate of silver in each eye. I have, however, used a weaker solution than the one suggested by Credé. The solution I use is only $\frac{1}{2}$ of 1%, two and a half grains to the ounce. I have not had a case of inflammation of the eyes of a newborn babe that did not yield to simple treatment.

DR. H. M. STARKEY.—Mr. President. A question was asked in regard to the teaching of the school here. I can answer for Prof. Jaggard. He does emphatically recommend the use of Credé's method in each case. I happen to know of some cases where he thought there was no trouble and did not use the method and where trouble has arisen, so he now recommends its use very emphatically, and, I think, also uses the method in Mercy Hospital. I know that I cannot remember in five years of a single case of ophthalmia neonatorum being treated in Mercy Hospital which originated there. Personally, I am coming more to think that it is a wise precaution to use nitrate of silver in all cases, because you occasionally get these cases that turn out so disastrous. I cannot think, as was stated, that these cases are always so easily treated, even when attended to early; that is if by early is meant after one or two days. It seems that if treatment is instituted before inflammation arises the trouble may be prevented. It seems to me that we should make a positive distinction between cases of non-gonorrhœal and gonorrhœal origin; that cases of gonorrhœal origin which have only commenced to have a purulent secretion, only been showing redness for a day or two, with the best means of treatment with which we are acquainted will prove fatal to the eye in quite a large proportion of cases. I do not know that I have treated them less efficiently than others, and yet I know that in a certain number of cases in adults or children, in which

the gonococci are found numerous—hospital cases where they have constant attention and nursing—a large proportion have resulted in sloughing the cornea, and to guard against this it seems to me when there is no decided objection to the use of nitrate of silver, it is better to employ it.

DR. W. F. COLEMAN.—Mr. President. Oculists are sufficiently aware of the dangerous character of ophthalmia neonatorum in certain cases. I have had a very satisfactory experience. The experience is never unsatisfactory unless the cornea has been seriously involved in necrosis; up to that stage it is a manageable disease. The recuperative power of the cornea in the infant is marvelous. I have seen half the cornea slough, and yet the child have sufficient vision to pick up a pin; but notwithstanding this, 10% of the blind are so, we are told, from such ophthalmia. I conclude that with such serious results we ought to adopt any prophylaxis which does not produce harm. I would decidedly advocate the employing of a prophylaxis, but I do not think a 2% solution of Arg. Nit. is absolutely necessary. For the treatment of ophthalmia neonatorum in the severe stage I know of no better remedy than nitrate of silver. Iodoform, mercury, boracic acid and carbolic acid are used. I have tried each of these remedies in one eye and applied nitrate of silver in the other eye, and the silver has the more quickly effected a cure. Now, since a 1% solution of Arg. Nit. can cure a case when the pus is secreting freely, it is of a sufficient strength for prophylaxis. It has been suggested here to apply silver only, as a prophylaxis, but we need not confine ourselves to such an unpleasant remedy. If boracic acid is applied every half hour for a few days in which there is most danger of attack, and the patient escapes that long, the disease is not at all likely to occur after that. Iodoform may be applied, 10% in vaseline, or perchloride of mercury 1-5000 and these may be applied frequently without any unpleasant result to the infant.

DR. GEORGE WEBSTER.—Mr. President. Although I am not an oculist I have attended a good many cases of obstetrics. I have been called upon to treat a number of cases for this affec-

tion. In the last seven years I have seen from three to six cases a year certainly, I have found that it is well in a large percentage of these cases to apply the nitrate of silver at least once. The secret of the whole matter, as suggested by Dr. Coleman, is that if after the application of the nitrate of silver we get a free discharge we should use a solution daily, of say, 1-6000 of corrosive chloride and have it applied at least every half hour, giving the nurse instruction to thoroughly cleanse the eye every time any pus appears. If this is done there will be no sloughing of the cornea. The eye should be kept absolutely clean night and day, and if that is not done it has been my experience that these cases are not so tractable as we might be led to suppose. I have seen cases where every precaution has been taken yet within two days the eyes would be brimming full of pus, and would fill up again, often in fifteen minutes after they were thoroughly cleansed. If the discharge becomes profuse these solutions must be applied frequently if we wish to save the eyes.

DR. BILLINGS.—Do you use it as a prophylaxis in all cases.

DR. WEBSTER.—Not in all cases, only when I have suspected there might be trouble, but I have never had a case where I used a 2% solution of nitrate of silver and had the nurse keep the eyes thoroughly clean with frequent applications of corrosive chloride, in which any serious consequences resulted.

DR. J. C. HOAG.—Mr. President. I think Dr. Tilley's paper is a very timely one, because I believe that the general practitioner is apt to be rather careless in this matter. If any further statistics were required as to the value of Credé's method, they certainly might be found in the records of the Vienna hospital. I think the statistics there would cover a larger number of cases than those of all the hospitals mentioned by Dr. Tilley. They have from thirty to thirty-five births a day in that hospital, and as I spent a good many months in the clinic there four years ago, I had ample opportunity to observe the application of the method and its results. The internes informed me that since the introduction of the method they had practically excluded this ophthalmia from the hospital. I do not know whether the

strength of the solution they used was 1 or 2%. With regard to the rule we should adopt, it would scarcely seem to me necessary to make a cast-iron rule in ordinary practice. I think if great attention is given to cleansing the eyes at birth, in the case of children who are born of women whom we do not suspect of any inflammatory trouble of the vagina, that it would hardly be necessary to apply the solution in every case, but it would at least be the part of wisdom to do so in all cases where we are at all suspicious of the mother.

DR. ROBERT TILLEY, in closing the discussion said.—Mr. Chairman. I felt like rising to a point of order during part of the discussion, inasmuch as the term gonorrhœal ophthalmia neonatorum was really not the point of the paper at all, and consequently when it was intimated that I claimed that one application of nitrate of silver to eyes that were already affected with ophthalmia neonatorum was all that was necessary, I was absolutely misrepresented. I never gave out any semblance of such an idea. The treatment of ophthalmia neonatorum did not come under consideration at all, but if I had been going to treat that subject there is no question in my mind but that the use of nitrate of silver is incomparably superior to any of the other remedies that have been mentioned.

I would say with reference to bringing forward other statistics that I did not think it necessary. I considered Credé's method complete and satisfactory and that no further evidences were necessary. To me the evidence from the Leipsic institution needs no corroboration whatever, and if it were possible to have it universally adopted, I am satisfied that ophthalmia neonatorum would be practically unknown. I did not intimate, or rather I did not state from my own knowledge, that nitrate of silver causes a certain amount of irritation, with the idea that there was an objection to its use on account of this irritation. I also stated that the irritation disappeared in 48 hours; Credé mentions 24 to 48 hours. With reference to the claim I made that these cases, when seen within a reasonable length of time, are very manageable, my own experience

so far as it has gone would justify me to the last degree in making that statement. I have treated quite a number of cases and have never had any difficulty with a case that I have seen before the cornea has sloughed. Of course when the cornea has sloughed there is no possibility of restoring the eye. When a child is brought to me with the cornea intact, and I have any fair opportunity to treat the child as I feel it is necessary to do, I do not expect any difficulty to arise. We get a number of cases in dispensary practice where the affection has lasted for several days and weeks and sloughing has occurred and then there is no possibility of restoring normal vision.

I would say, Mr. President, with reference to the percentage of nitrate of silver, if we use nitrate of silver at all as a prophylaxis, in my judgement I would adhere most emphatically and strictly to the particular process laid down by Credé. In my opinion he has studied the question thoroughly, and I believe he has settled on a 2% by process of observation. If he has come to the conclusion from his experience that a 2% is the strength desired, I would rather trust to his observation, instituting a possible source of irritation, than to use a $\frac{1}{2}$ or $\frac{1}{4}$ % with a chance of failure.

Another point is this: The gentleman who was in service at the Maternity Hospital stated that a few drops were used. Credé's method is one single individual drop, and he says it should be dropped from a glass rod, apparently in order to avoid the introduction of more than that. I think that is a wise precaution. I believe that one drop carefully applied as a prophylaxis—not to treat the affection under full sway—would be satisfactory. I remember reading a report made, I think, by Dr. Garrigues, after Credé's paper was published. I had something to do with the *Medical Review* at that time, and had occasion to review Dr. Garrigues' statement, and to some extent criticise it. He gave a very glowing report of the absence of ophthalmia neonatorum, but there was one case in the obstetrical ward that was forgotten, and that was a case of ophthalmia neonatorum in both eyes. The cornea in both

eyes sloughed so that the child was blind. To me that seemed a terrible satire on the treatment of cases in the Maternity Hospital. I remember reading some time ago of some place in New York where the method of Credé was in a sense adopted, but they made a departure from it by pouring the nitrate of silver from a spoon into the child's eyes. The absolute impossibility, under these circumstances, of following Credé's method of putting in a single drop, is seen at once. If I should advocate any method, I rigorously adhere to the plan published by Credé.

I thank Dr. Wescott for his suggestion, namely, that instead of using the term leucorrhœal discharge, it should be any vaginal discharge. But I would still adhere to the suggestion I made, that the most conservative plan, especially in America, would be to resort to this method only in case of there being a distinct history of a vaginal discharge, and for this reason: we are more liable to suits for malpractice here than they are in Europe, and there are not a few affections existing among infants that in all probability may elude the observation of the practitioner, if ever it comes to the parents' knowledge that the practitioner has put something into the child's eyes immediately after birth, and from any cause whatever the child may be blind, this would in all probability be a source of complaint, of course not justly so, but at the same time of such a nature that the practitioner would rather avoid it if he could. On that ground I would simply use the nitrate of silver in cases where there was some vaginal discharge.—*Western Med. Report.*

RECENT EXPERIENCE IN THE TREATMENT OF EXOPHTHALMIC GOITRE.¹

BY E. D. FERGUSON, M.D., OF TROY, N. Y.,

Secretary of the New York State Medical Association.

Exophthalmic goitre is not a common disease, and yet not so rare as to render it a curiosity. Doubtless the large majority of physicians have had more or less experience in its treatment. If that experience has corresponded with my own, it would have been marked until a recent time by eminently unsatisfactory results, at least in the majority of cases. It is true that occasionally cases would be met which did not make rapid progress downward—cases in which the disease would remain stationary, or even an improvement take place—but until about two years ago it had been the conviction of the writer that but little encouragement could be given the victims of this disease, while the idea of a cure could rarely be entertained. The variety of treatment suggested and the contradictory statements of those treating on its therapeutics justified the conclusion that either the medication was eminently unsatisfactory or a variety of morbid conditions requiring differing treatment had come to be classed as exophthalmic goitre, and the therapeutical as well as the nosological differentiation remained to be made.

Though the disease is one with sufficiently well-defined characteristics to allow of ready recognition, still errors of diagnosis may and doubtless do occur. The fact that enlargement of the thyroid body is not peculiar to this disease, and

¹Read at the meeting of the New York Medical Association, October 23, 1890.

that a frequent pulse is attendant on a multitude of morbid conditions, furnishes us two-thirds of the diagnostic points as of common occurrence, and it is not unreasonable to suppose that occasionally prominence of the eyes may be added from causes not the same as the conditions determining the development of exophthalmic goitre. The conclusion that the condition is not at any rate a pathological unit has been strengthened, in the judgment of the writer, from the results of the use of digitalis, for in every instance in which he felt confident of the diagnosis, that drug not only failed to afford relief, but was apparently productive of injury. In this he found himself in accord with many to whose writings he has had access; and yet, occasionally, benefit or even a cure would be ascribed to digitalis.

Prior to 1888 his experience had been one of nearly uniform failure to relieve or benefit the patients suffering from this disease, at least so far as direct results from the agents prescribed could be fairly assumed; and this statement is made in connection with the fact that all therapeutical measures, including electricity, which had been recommended as useful, had been given thorough and persistent trial.

Being so thoroughly convinced of our resources, it was with reluctance that the care of a pronounced case of the disease was undertaken in the autumn of 1887, and the husband of the patient was quite plainly given to understand that the result would probably be a failure to cure or even stay the progress of the malady.

The patient was a woman, *æt.* 55, with notable exophthalmos, enlargement of the thyroid body, and a pulse from 110 to 120. She faithfully followed the treatment advised, which included tonics, aconite, belladonna, electricity in the form of the so-called central galvanization, digitalis, etc., but after several months she was so much worse as to be confined to her bed with a pulse rate of 120 to 150 and a discomfort in the cardiac region that prevented sufficient sleep, and at times seemed to reach the agony of an angina pectoris.

In deliberating on the course to be pursued in this case, it

occurred to the writer that the rapid, forcible and occasionally tumultuous action of the heart, as well as the changes found in that organ in cases dead from the malady, would favor the idea of an increase in the resistance in the systemic arteries as one of the events of the disease, and as digitalis was believed to increase arterial tension it was concluded that that fact explained its failure to quiet the excited heart action.

The then new therapeutical agent, strophanthus, was said to lessen the resistance in the systemic circulation, and with that object in view its administration was begun. The patient at that time was in a pitiable condition. She was unable to walk; in fact, every change of position brought on exceedingly uncomfortable, generally quite painful, sensations in the pericardium, and emaciation had advanced to an extreme degree, thereby emphasizing the exophthalmos. A measure of relief was manifest soon after commencing the use of strophanthus, which was some three or four months after the case was taken in charge.

As soon as a positive degree of improvement in the rate and quality of the pulse and the general condition of the patient was manifest, all treatment aside from the administration of iron, arsenic and strophanthus was omitted, and the improvement continued, till in about six months the pulse was reduced to 80, the patient was in every way comfortable, and able to take a fair amount of exercise without inconvenience.

By one of those curious coincidences of the observation within a short interval of time of a number of rather rare cases of disease, it fell to the writer's lot to see within a few months eight cases of the disease under consideration, and thereby quite an amount of clinical material was placed at his disposal.

One of the early cases was seen in consultation, and was the first instance of the disease ever seen by the attending physician. The patient was a woman, æt. 41, with a pulse rate of 150, and with the usual dyspnoea. She was at once put on the strophanthus treatment and the improvement was rapid. A few weeks after this case was seen, and as another curious coincidence, the same physician brought to my office another

case in a man *æt.* 41. In this case the pulse was 130 and the dyspnœa on exercise was troublesome, but not as extreme as in the preceding case. He was placed on the same treatment and improvement was prompt. He continued the medicine for about ten months, except a few days, when he took spartein, but returned to the strophanthus under my advice. I examined him recently and found him in good health and with a pulse rate of 76 per minute.

It is not necessary for me to give details of all the cases, it being sufficient to state that the administration of strophanthus afforded relief and allowed a return to ordinary occupations in every instance excepting one, and in that case there was associated pulmonary disease, probably of a tuberculous character, which implied an unfavorable termination aside from the exophthalmic goitre. In this instance there was no improvement in any of the symptoms, the case passed from my observation and doubtless progressed to a fatal issue, though I have been unable to trace the history. Several of the cases are still under observation, and I consider them still under treatment, for though they have improved so as to consider themselves in some instances as cured, in my own judgment the treatment should be continued with more or less regularity for a longer period of time. I have also excluded from my report some cases recently seen, and in some cases seen only once and that failed to keep me advised of their progress.

In no instance has either the exophthalmos or the goitre been entirely removed, and so far as the goitre is concerned I should not expect its removal, for where the enlargement has existed for some time it becomes of so dense or fibrous a consistence as to exclude the idea of its complete removal. So far as I could judge, however, there was a notable degree of improvement both in the exophthalmos and in the enlargement of the thyroid body, but it is manifestly difficult or even impossible to express in mathematical terms the changes in these features of the disease as can be done in the rate of the pulse. In the case of the heart, however, and in particular in the instance of the patient first cited, I was satisfied that not only

were the rate and rhythm of the contractions favorably influenced, but there undoubtedly existed a dilatation of the left ventricle, which improved so as to leave no physical or symptomatic evidence of cardiac lesion.

Though recent pathological considerations tend to place exophthalmic goitre in the category of the neuroses, and to find the locus of its origin in that specially vital region—that neuropathic switch-board—the vicinity of the floor of the fourth ventricle, still the evidence is not such as to give us any clew concerning its etiology or treatment aside from what we can gather from clinical observations, and consequently there is no explanation to offer as to the method by which strophanthus affords relief, aside from the idea that first suggested its use, and that was to relieve an apparently overtaxed heart through the lessening of the resistance in the systemic circulation, which was claimed to be its action. This explanation may not be in full harmony with the results of physiological experiments, and particularly with what is known as Marey's law, that there is an inverse ratio between the arterial or general blood pressure and the rate of the pulse, the heart apparently being hastened in its rapidity when resistance is diminished, as would be the case in an ordinary piece of machinery.

While accepting in a general way the conclusions from physiological experiments, there are some claims made, relative to the dynamics of the vascular system, that fail to gain my assent, or at least to stand as explanations, and the disease under consideration is an instance, for in it the action of the heart more nearly resembles that which attends and follows violent physical exercise than any other condition with which it can be compared, and assuredly we will hardly concede that the rapid, violent and excited action of the heart in those who are climbing mountains is due to diminished arterial tone. Whether we are to consider arterial tone and systemic resistance as occasionally convertible terms is also a problem, though an intimate relationship is manifest. Incidentally it may be noted that the mystery and perplexity of some points

in the physics of the circulation of the blood renders a climax in the claim made that blood-vessels may actively dilate, and thereby practically solve the problem of lifting oneself by the boot-straps.

If we grant the power of forcible dilatation on the part of the blood-vessels, it is not difficult to understand that the range of change in vascular resistance from the tonic contraction of arteries to their active dilatation, and consequent virtual suction effect, would be sufficient seriously to disturb the heart. A corresponding variation of resistance would be disastrous were it not for the "governor." But we are told the heart has such a "governor," and that it is located in the vicinity of that part of the medulla occupied by the restiform bodies. We will consent that physiological experiments seem to justify such a claim, though pathological observations have not so far contributed any positive evidence, and a careful sifting of the evidence will not justify positive conclusions—nothing more than the probability that in the medulla there is a centre having control over the circulation of the blood, and that strophanthus may in some way "govern" this.

Aside from any theoretical considerations as to the way in which the agent acts, the fact remains that benefit was apparently the direct result of its use, a benefit so notable as almost to justify the claim of a cure in some of the cases, but it would be wise to stop short of such a claim, for it was observed in one of the most favorable instances that while the result in a general way was eminently satisfactory, still any mental anxiety or disquietude was sufficient to raise the pulse rate from about 80 to over 100 for a period of several days.

The period of time during which the agent has been on trial is altogether too brief to justify too glowing claims for permanency of results, and the writer cannot divest himself of the fear that the improvement will not in the majority of cases remain permanent.

The only claim that is justifiable at present is that strophanthus has proved more notably beneficial in the treatment of exophthalmic goitre than any other drug or remedial measure.

A few words relative to the agent itself, or rather its preparations and dosage, may be useful. The only preparation used by the writer was the tincture, but it was observed that a notable difference existed in the taste of different specimens. This difference related mainly to the bitterness, and upon investigation was found to be ascribed by some pharmacists to the length of time the drug was allowed to remain in the menstruum, and by others to the improper predominance of pods over the seeds in preparing the infusion. It was impossible to concede just how the excessive bitterness was induced, but it was apparently due to an oil or oleo-resin which would render the tincture opaque on the addition of water. Several ounces of this oily material were shown to the writer by one pharmacist as having been separated in the process of manufacturing the tincture.

In some instances the presence of a large amount of this bitter principle seemed to be productive of disturbance of the stomach, which was avoided by using other samples with less bitterness, and on the other hand some instances were noted where the bitterness was not objectionable, though on the whole the impression remained that those specimens that were notably bitter did not act as favorably.

The administration was by the conventional method of three doses daily—one at each meal—the initial dose being from 8 to 10 drops, which was increased, if necessary to reduce the frequency of the pulse, to 15, 20, or even 25 drops, and in fact relief was not obtained in some cases until the large doses mentioned had been used. In no instance did unpleasant results appear to be due to the drug, aside from some nausea which was ascribed to the individual preparation used, and apparently due to an excess of the bitter principle.

There have been but few, and those brief notices of the use of *strophanthus* in Graves' or Basedow's disease, and its use is not advised in any of the recent "year books" consulted by the writer. It had been used by him for over a year, in the treatment of the disease under consideration, before he saw any notice in medical literature of its prescription by others.

Within a year he has seen in the medical journals a few notices of its use, and the reports have been quite uniformly favorable.

Whether its apparent utility will bear the test of time and larger experience is still problematic—at present it seems to be our most valuable therapeutic resource in exophthalmic goitre.—*Jour. Am. Med. Ass'n.*

OBITUARY.

ÉVARISTE WARLOMONT.+

Ophthalmology, and especially ophthalmological journalism, have experienced a serious loss. Évariste Warlomont, the editor of the *Annales d'oculistique*, died at the age of 70 years, on January 22, at Brussels, after a long and painful illness.

Warlomont, the oldest of ophthalmic journalists, had entered our specialty in 1853, as the successor of Florent Cunier in the editorship of the *Annales d'oculistique*, to which he has devoted his life to his last day. Before that time the journal had eked out a very precarious existence; by means of his great talents of organization and his writings, as much as by the select collaborators with whom he always knew how to surround himself, he made of it that powerful publication, which everybody knows, and which will long remain without a rival, as well in foreign lands as in the lands which speak the French language.

Warlomont's genius was a general one; it is almost totally to him, that we owe the translation of that excellent work of Mackenzie, which for a long time has remained the only classical treatise written in our language.

Furthermore, Warlomont's talents as an organizer and his scientific authority allowed him to help greatly in the creation of the International Congresses, which are now so popular.

We know that he succeeded in reviving these Congresses during the one held at Brussels, when they seemed destined to be definitely forgotten.

His was the gift to bring a remarkable clearness into the discussions, and we all remember how he proposed at the London

Congress to vote on the question of the preventive treatment of sympathetic ophthalmia. It does not seem, as if the forms of treatment, which have of late been introduced, will be really able to prevent Warlomont's proposition from surviving even its author for a long time.

During his long journalistic career Warlomont had read many things, and what he read he knew. He recognized better than anybody else, in the writings the old ideas translated and transformed by the recent authors with more or less honestly.

His criticism then was war-like, and, as he himself expressed it, his journalistic talent, always polemically inclined, at such an occasion swooped down in full force. He had often occasion to make use of it.

The *Annales d'oculistique* have lost an alert pen, which will be regretted.—V. in *Archives d'Ophthalmologie*.